

Vigorous Ancient Oaks

or

Life Lessons from Old Trees



Neil Pederson; Columbia University

National Forestry Database Program – Natural Resources Canada -

Overmature In even-aged management, those trees or stands that grow past the mature class, where net growth increment declines as trees lose vigour and die. http://nfdp.ccfm.org/cp95/text_e/sect3t3e.htm

forestry.about.com - OVERMATURE - Point at which timber has begun to lessen in commercial value because of size, age, decay, or other factors. Many trees in a virgin or old growth stand are overmature and are, *in fact*, dying of old age. <http://forestry.about.com/library/glossary/blforglo.htm>

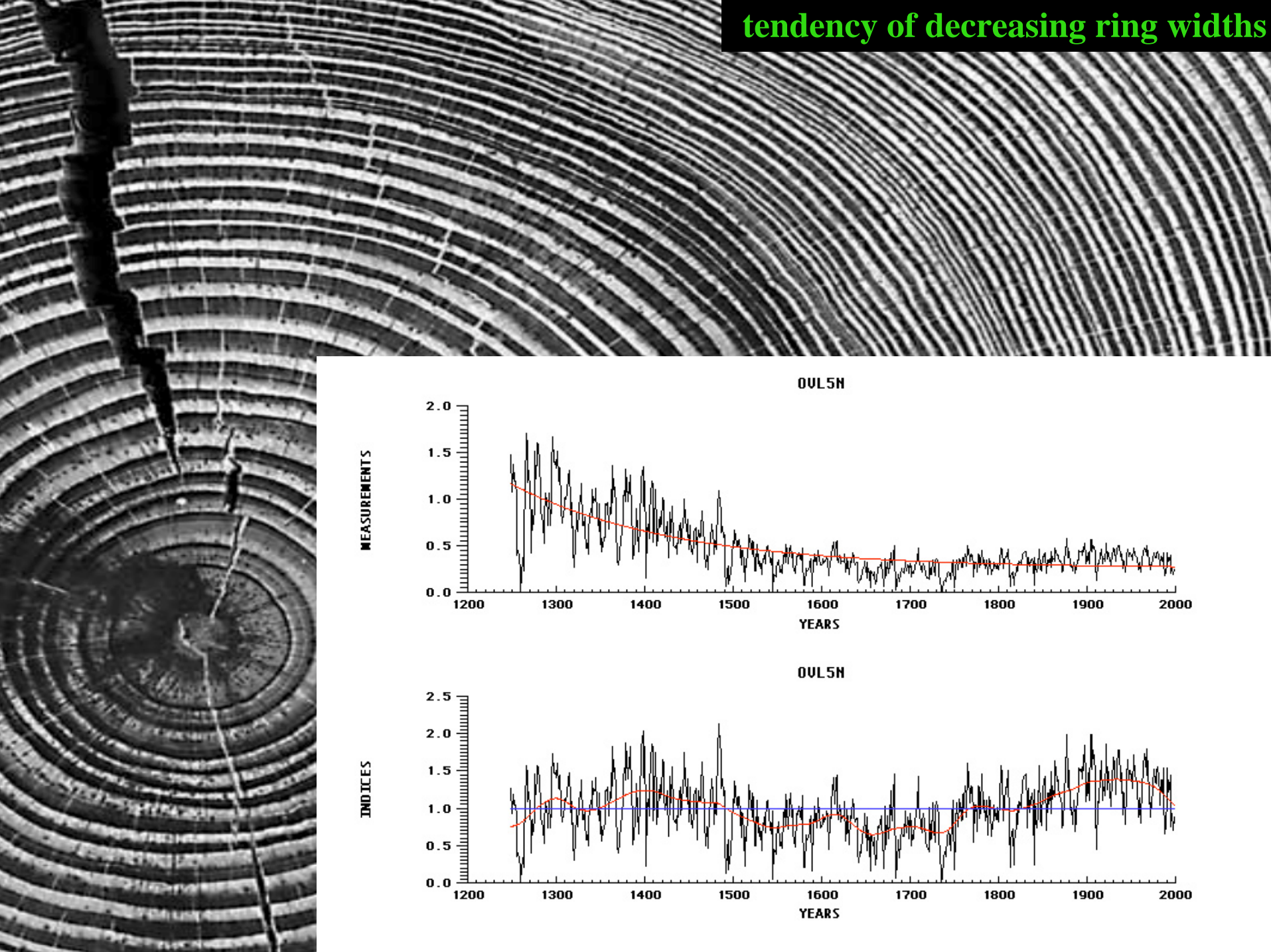
IPCC: Overmature forest stands take up carbon from the atmosphere at slower rates, but even as the growth increment of the trees approaches zero, carbon may continue to be funneled from the atmosphere to the soil via the trees in the form of aboveground and below-ground detritus. Nonetheless, forest stands can become net sources of carbon to the atmosphere—for example, if soil temperature abruptly increases (Peterjohn et al., 1994) or the soil becomes more aerobic after drainage (Lindroth et al., 1998), thus promoting oxidation of soil organic matter. http://www.grida.no/climate/ipcc/land_use/027.htm

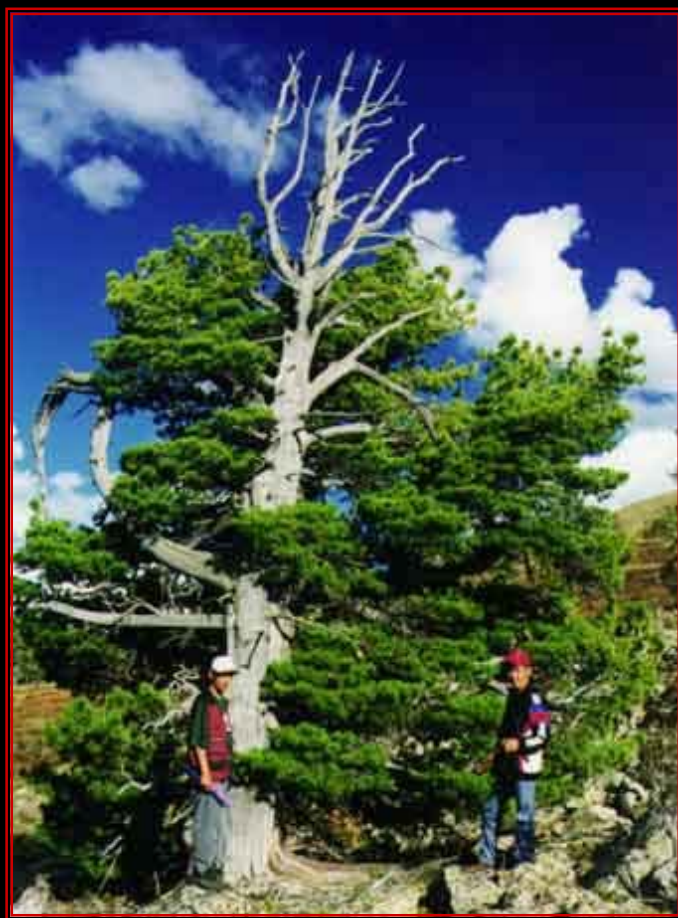
Forest glossary: overmaturity. That period in the life cycle of trees and stands when growth or value is declining. See maturity. <http://www.ccffa-oswa.org/N-O.html>

Forest Stand Dynamics – Oliver and Larson – pp 275 – “Unlike younger, more vigorous overstory trees whose neighbors have been killed by a minor disturbance, old overstory trees generally do not respond rapidly to refill the the available growing space when a dominant neighbor dies.”

overmature

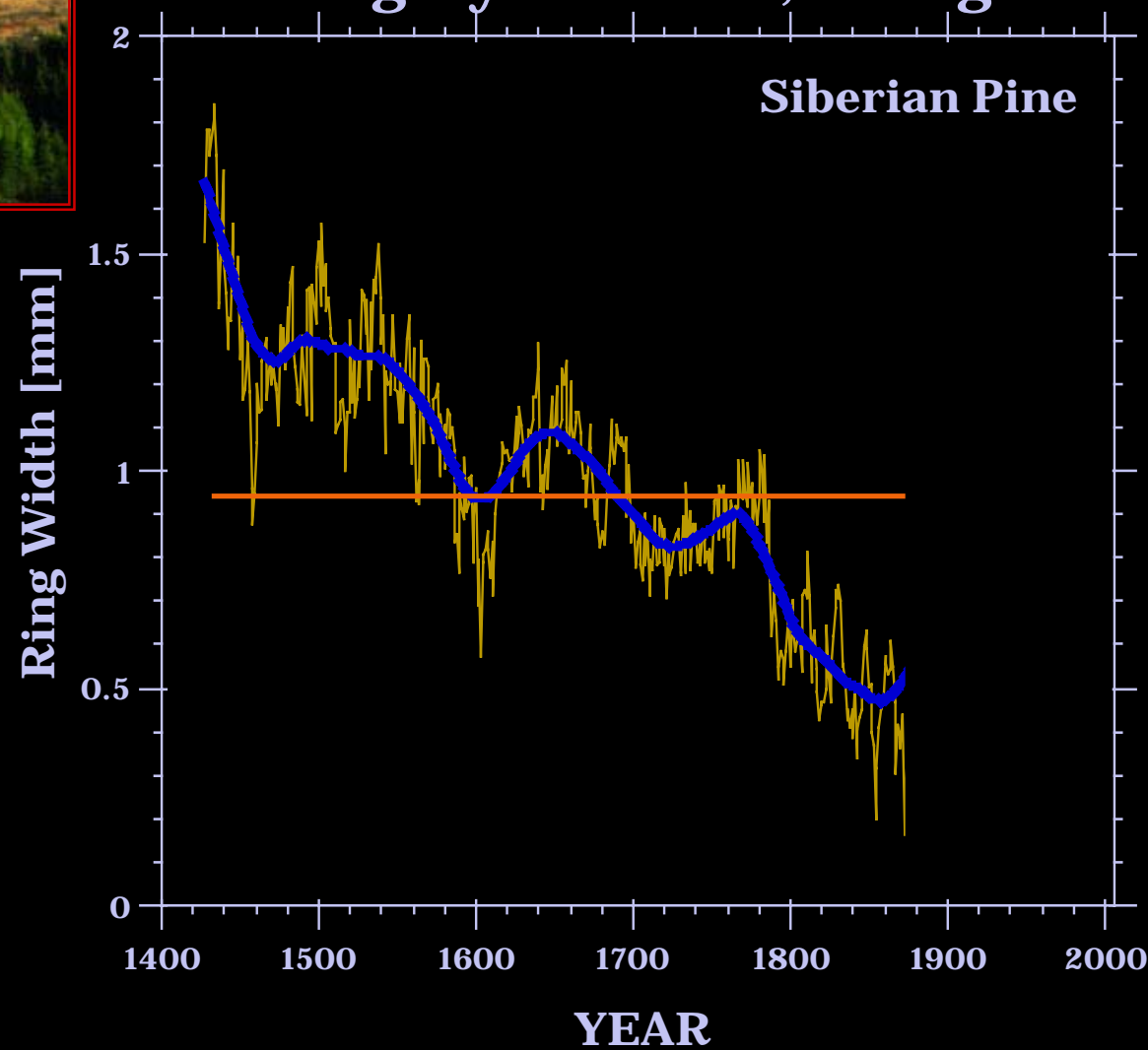
tendency of decreasing ring widths





Sologotyin Davaa, Mongolia

Siberian Pine



**Has growth changed in trees
from temperate forests since
the end of the Little Ice Age?**



study area



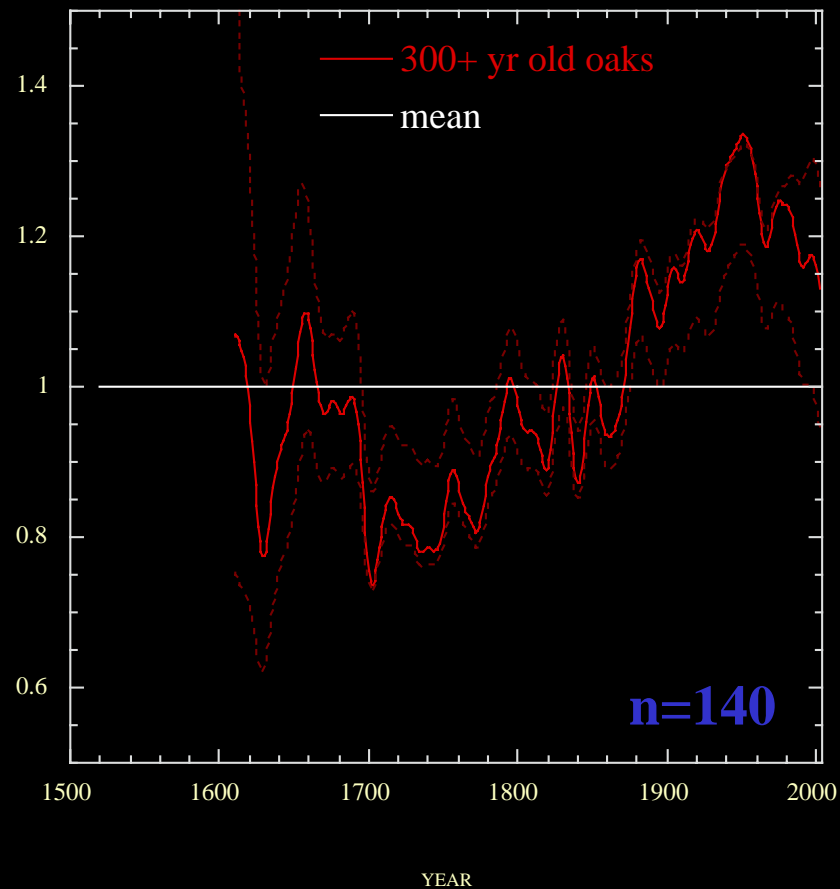
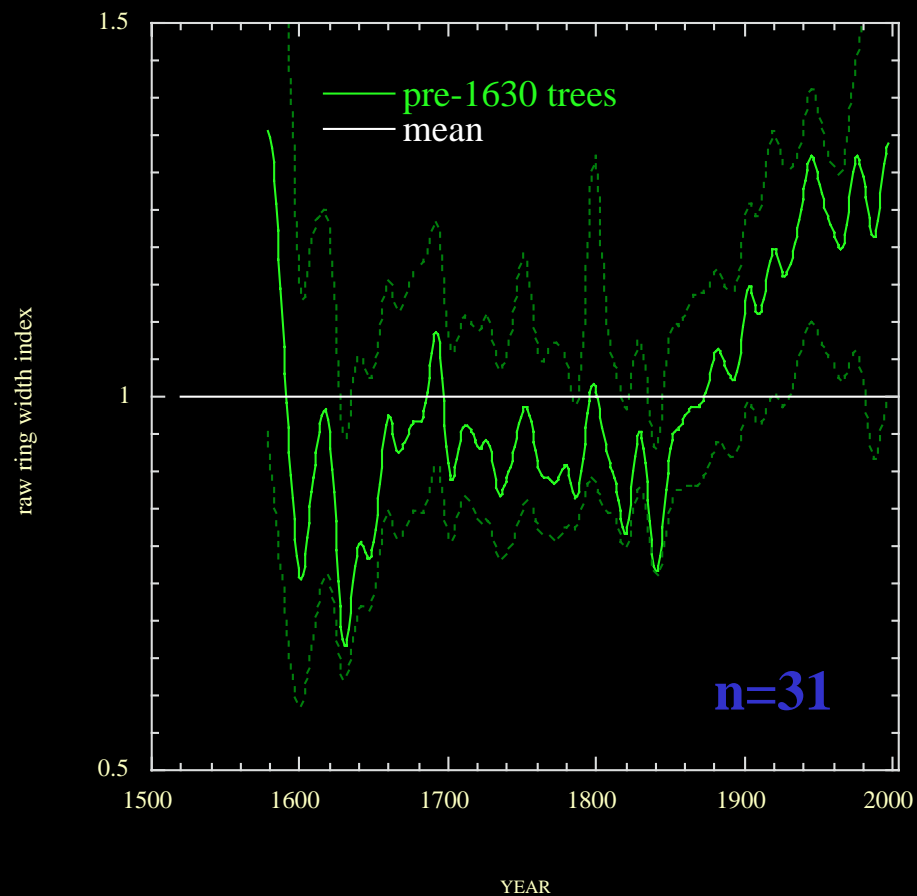
chestnut
oak

white
oak

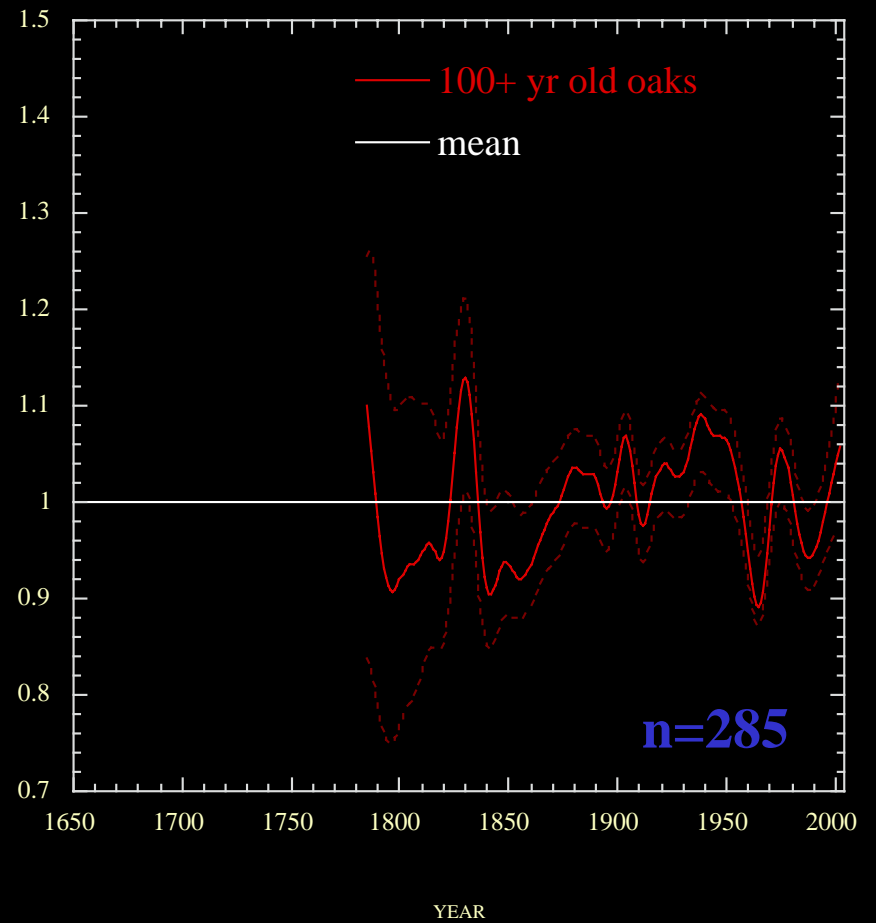
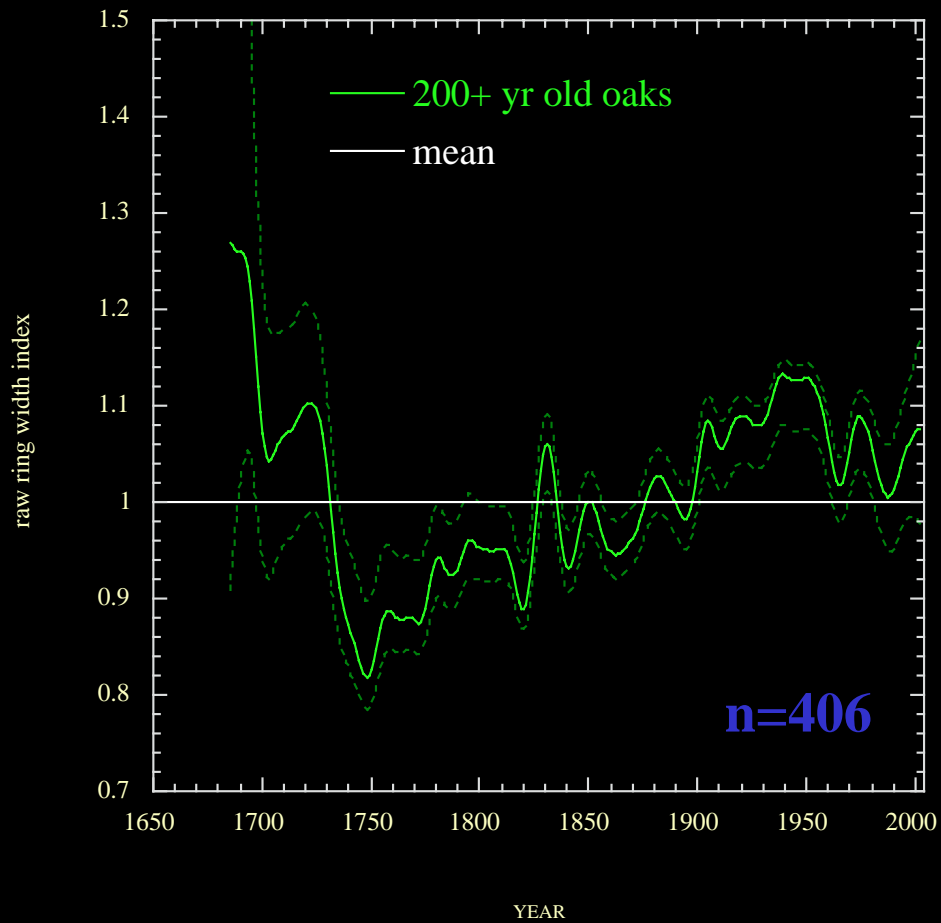
842 trees
collected over 2
time periods:
1977-1983 &
1999-2003

no removal of
growth trends

split into 100 yr
age classes

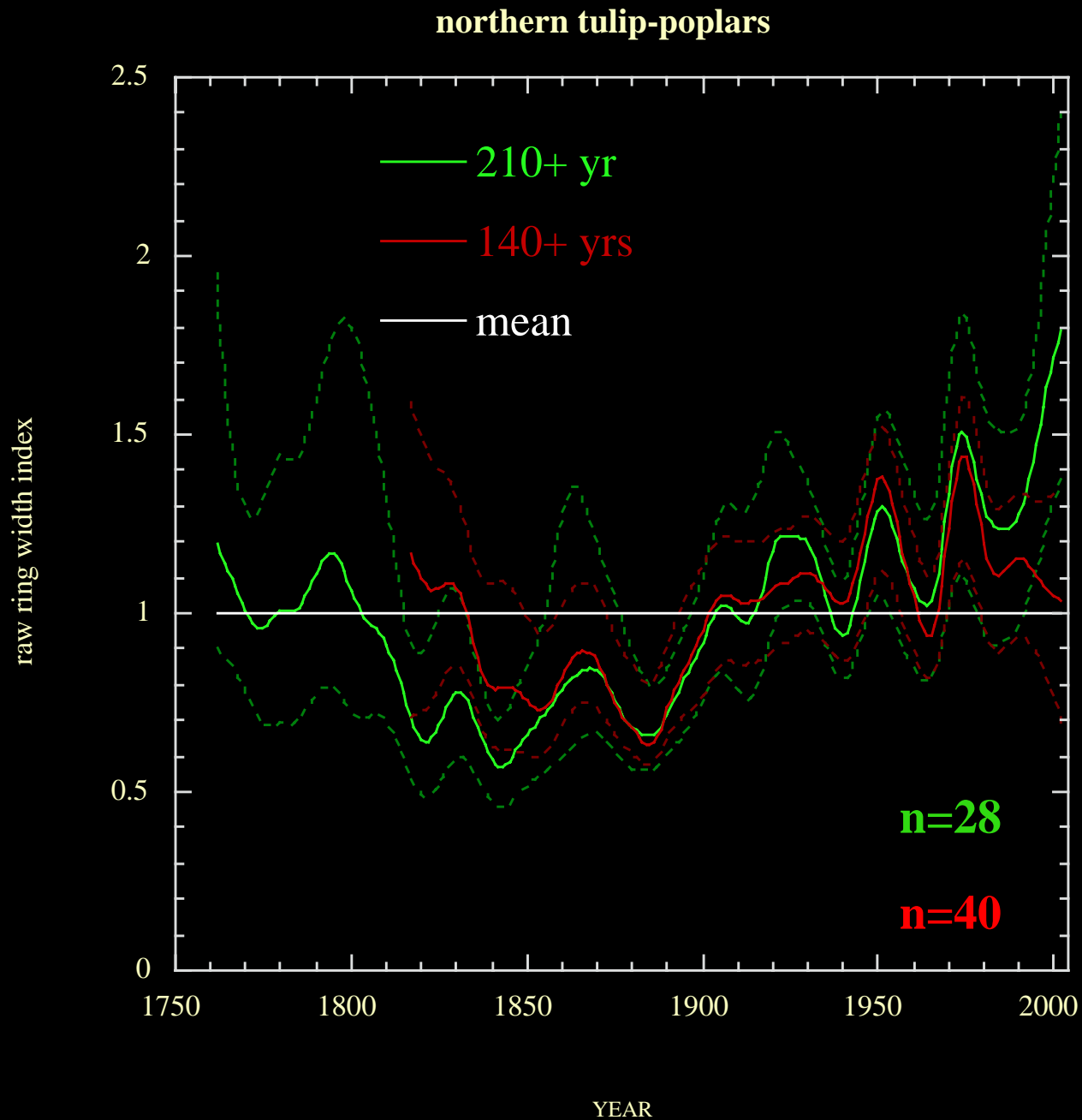


eastern oaks

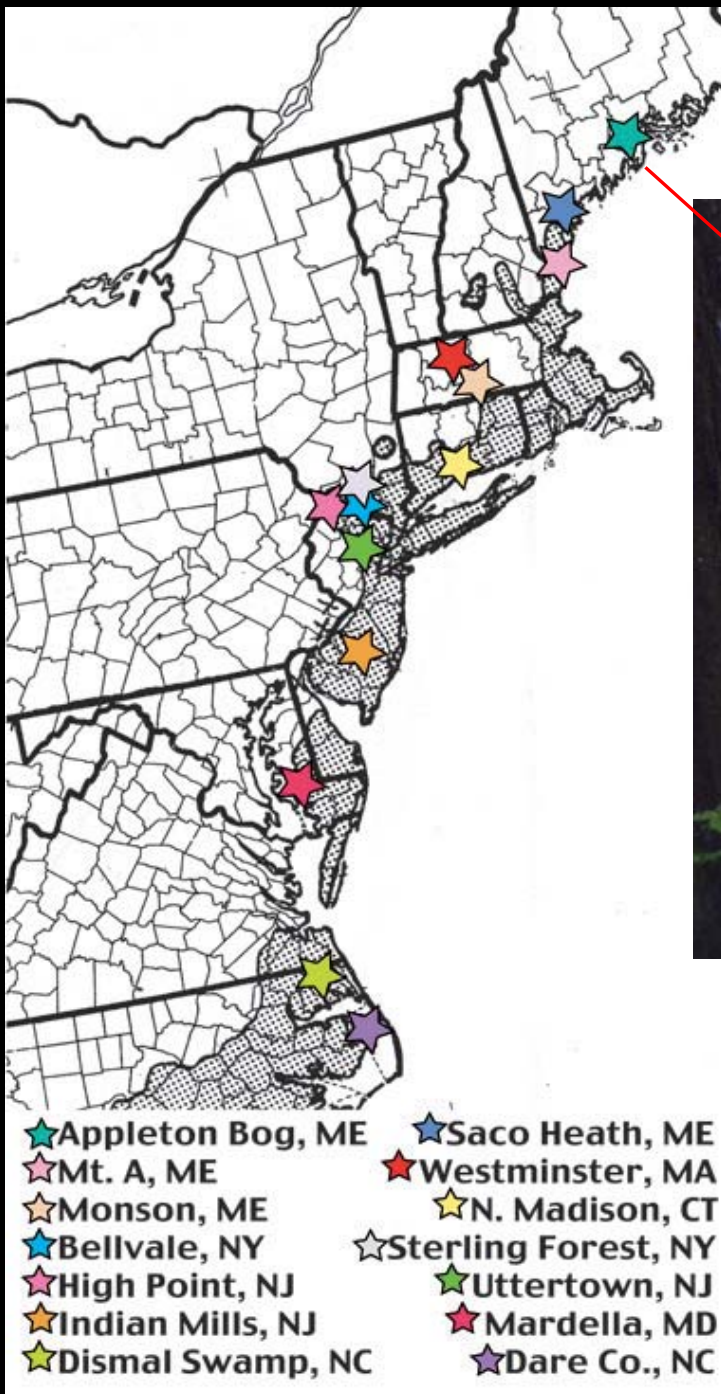


eastern oaks

tulip-poplar

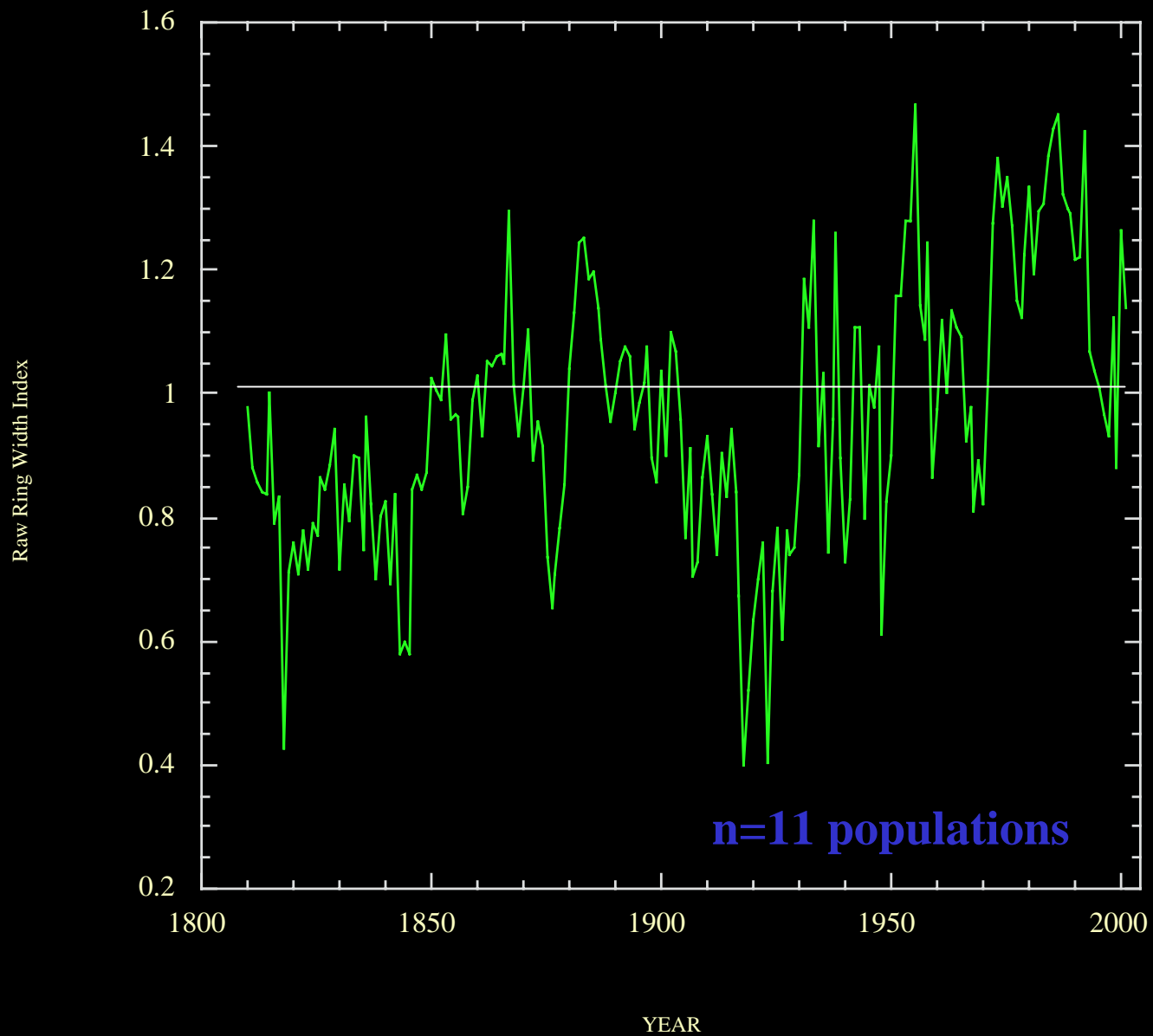


Atlantic white-cedar



Myvonwynn Hopton
@ Appleton Bog, ME


Atlantic white-cedar



Pop Quiz!!

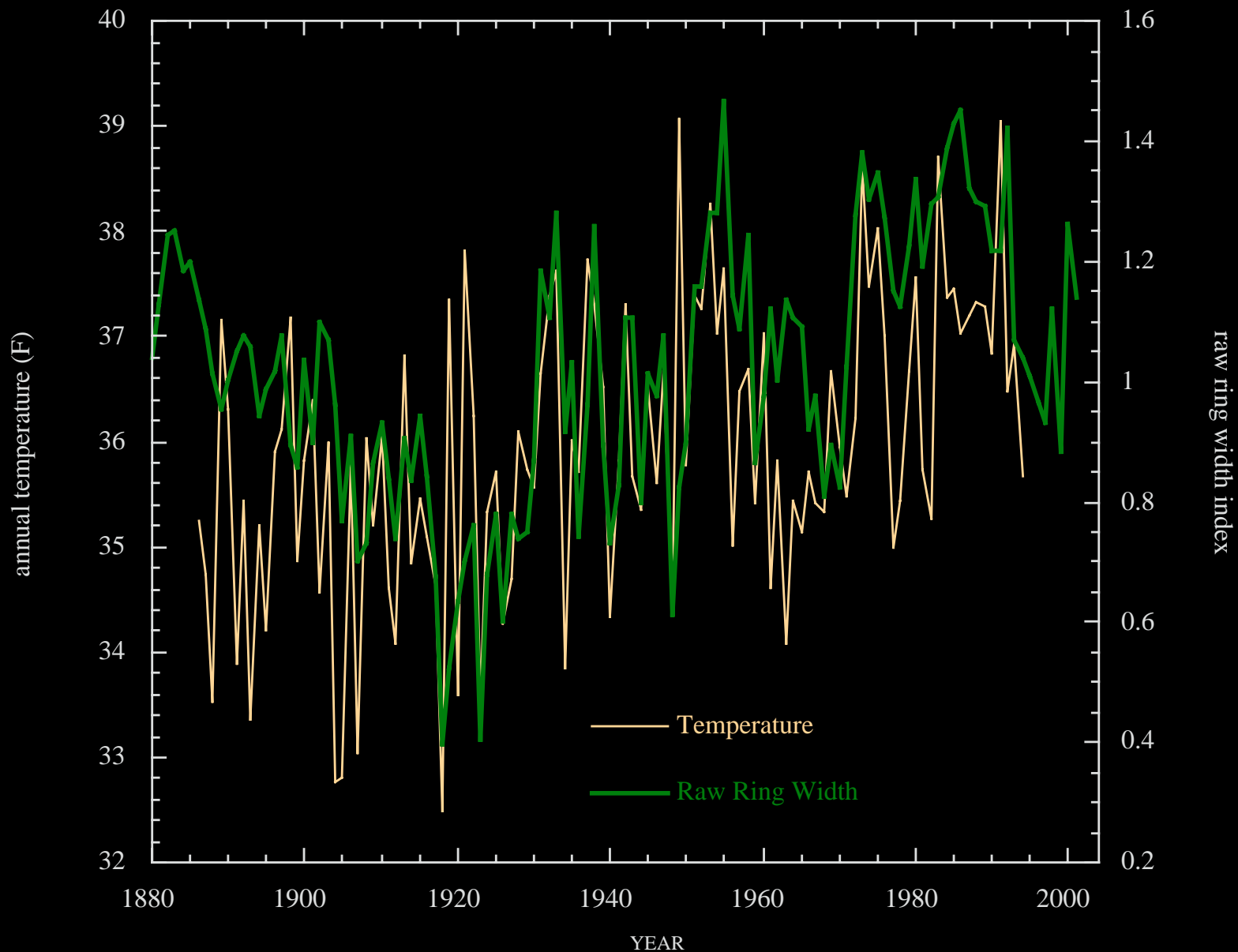
What is driving the
increased growth!!!???



A scenic landscape photograph showing a steep, rocky mountain slope covered in dense green forest. The mountain's features, including its jagged rock formations and the texture of the trees, are perfectly mirrored in the still, dark water in the foreground. The overall composition is symmetrical along a horizontal axis.

time's up!!

Atlantic white-cedar



implications

Age: - evidence here indicates
substantial increase in growth
of trees at or near max. age

Forestry: - early supp. - long rotation?

Conservation: - justify protecting old,
disturbed forests for C_{uptake}

Senescence/Overmature?

- complex interaction 'tween
climate & site?

- genetics?

- bad luck?

black oak, old maid's woods, ny





IN REPLY REFER TO:

N2219

United States Department of the Interior

NATIONAL PARK SERVICE

BLUE RIDGE PARKWAY
700 Northwestern Bank Building
Asheville, North Carolina 28801

January 6, 1982

Mr. Edward R. Cook
Research Scientist
Lamont-Doherty Geological Observatory
of Columbia University
Tree-Ring Laboratory

Dear Mr. Cook:

The Blue Ridge Parkway does not have any old-growth stands of trees that would be beneficial to you with your proposed project.

Mountains National Park has the largest stand of virgin trees in this area.

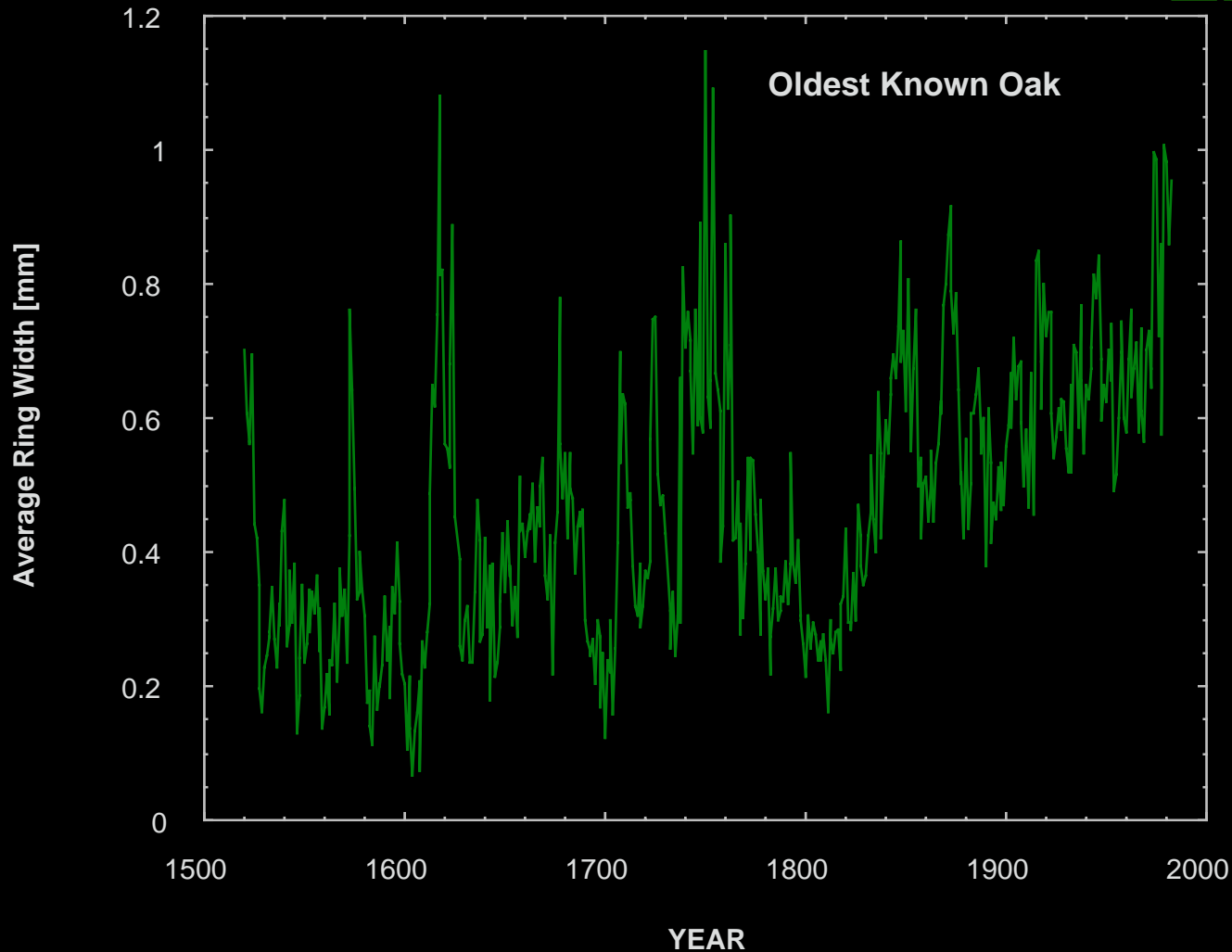
I am forwarding a copy of your letter to Mr. Walter Rule, U. S. Forest Service, P. O. Box 2750, Asheville, North Carolina 28802 and also to the Great Smoky Mountains National Park, Gatlinburg, Tennessee 37738. Both agencies should contact you in the near future and provide you with the assistance you need for your project.

Sincerely yours,

Resource Management Specialist

Life Lessons: I

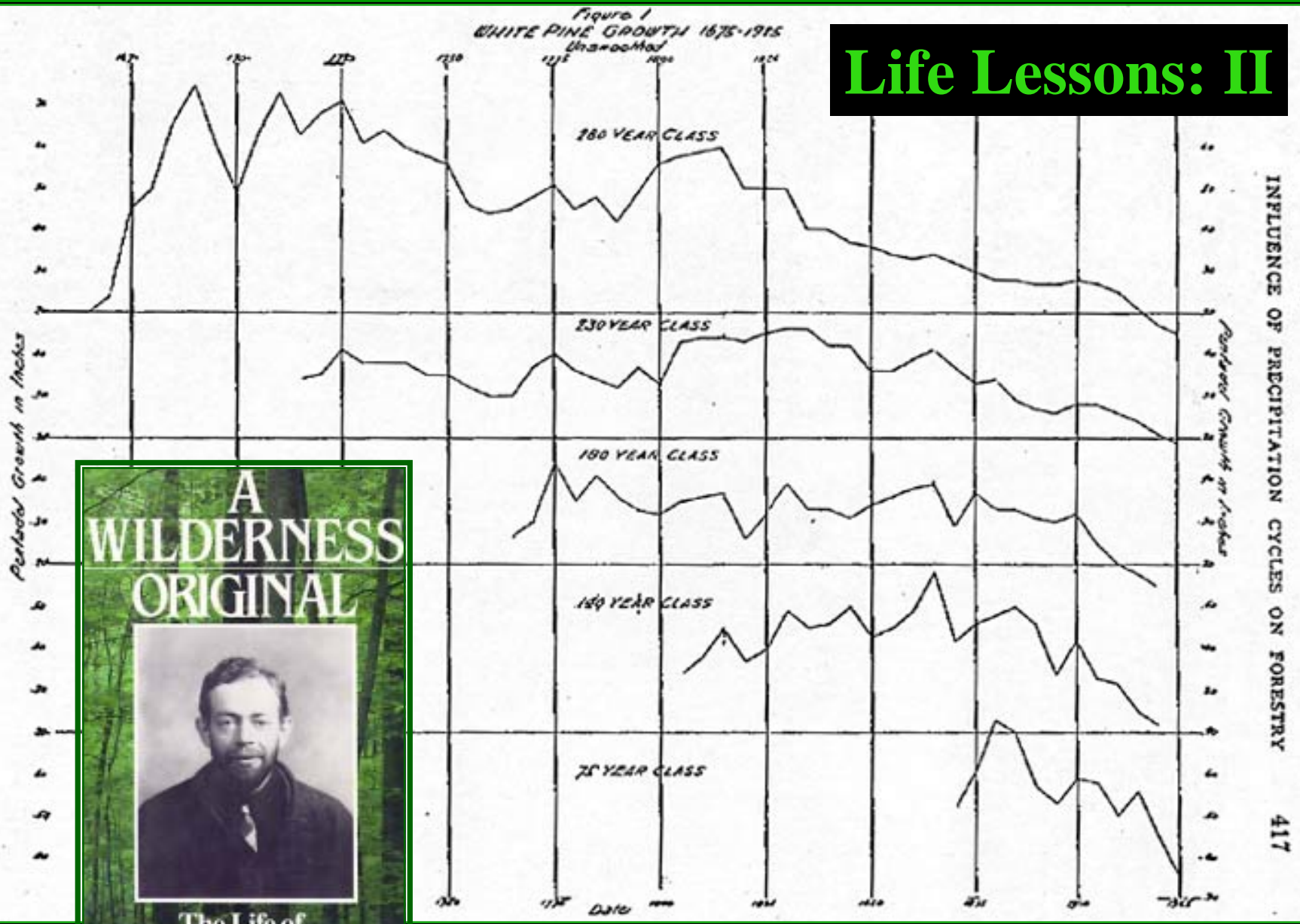
Life Lessons: I



Dear Mr. Cook:

The Blue Ridge Parkway does not have any old-growth stands of trees that would be beneficial to you with your proposed project.

Life Lessons: II



A WILDERNESS ORIGINAL

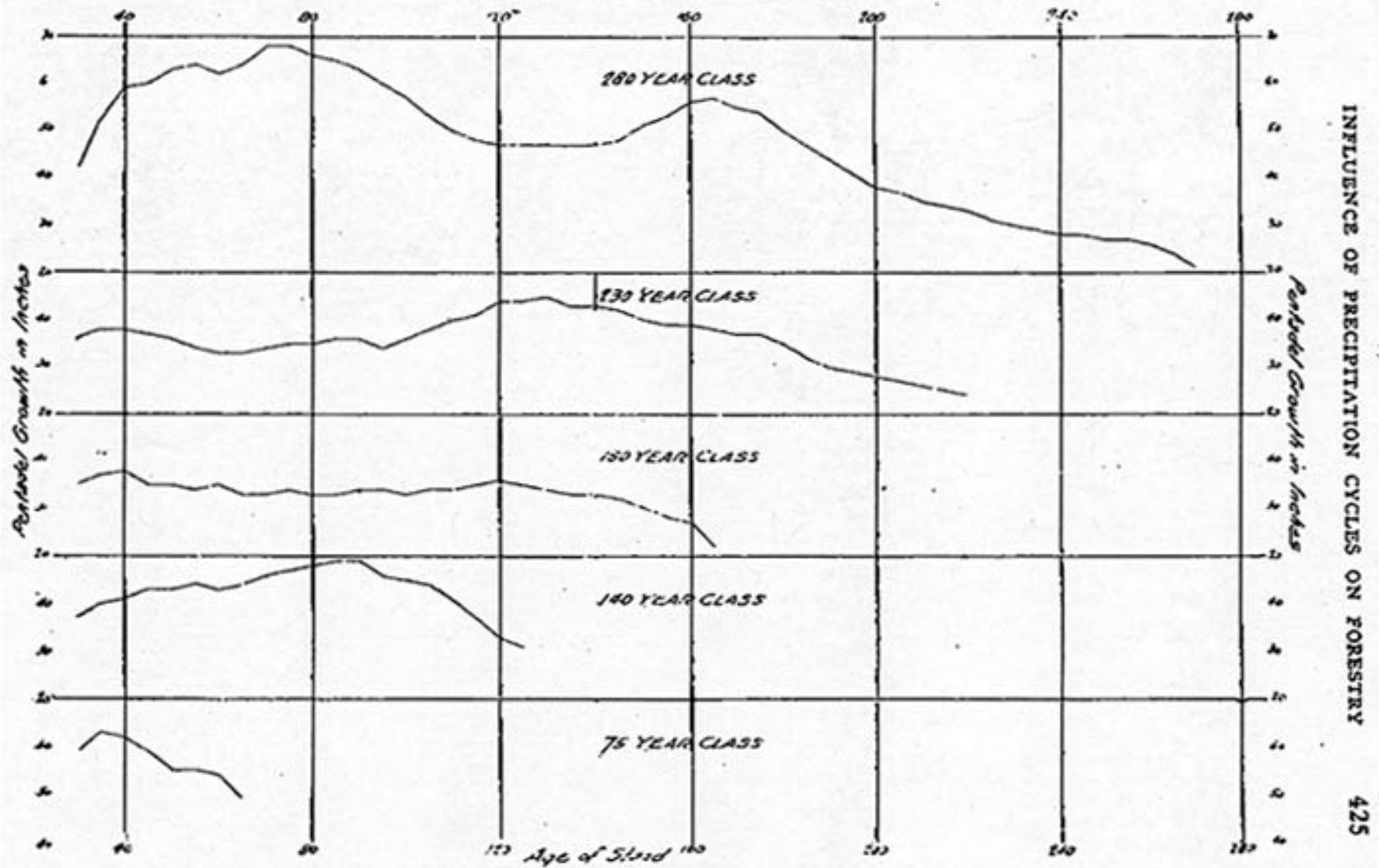


The Life of
BOB MARSHALL

JAMES M. GLOVER

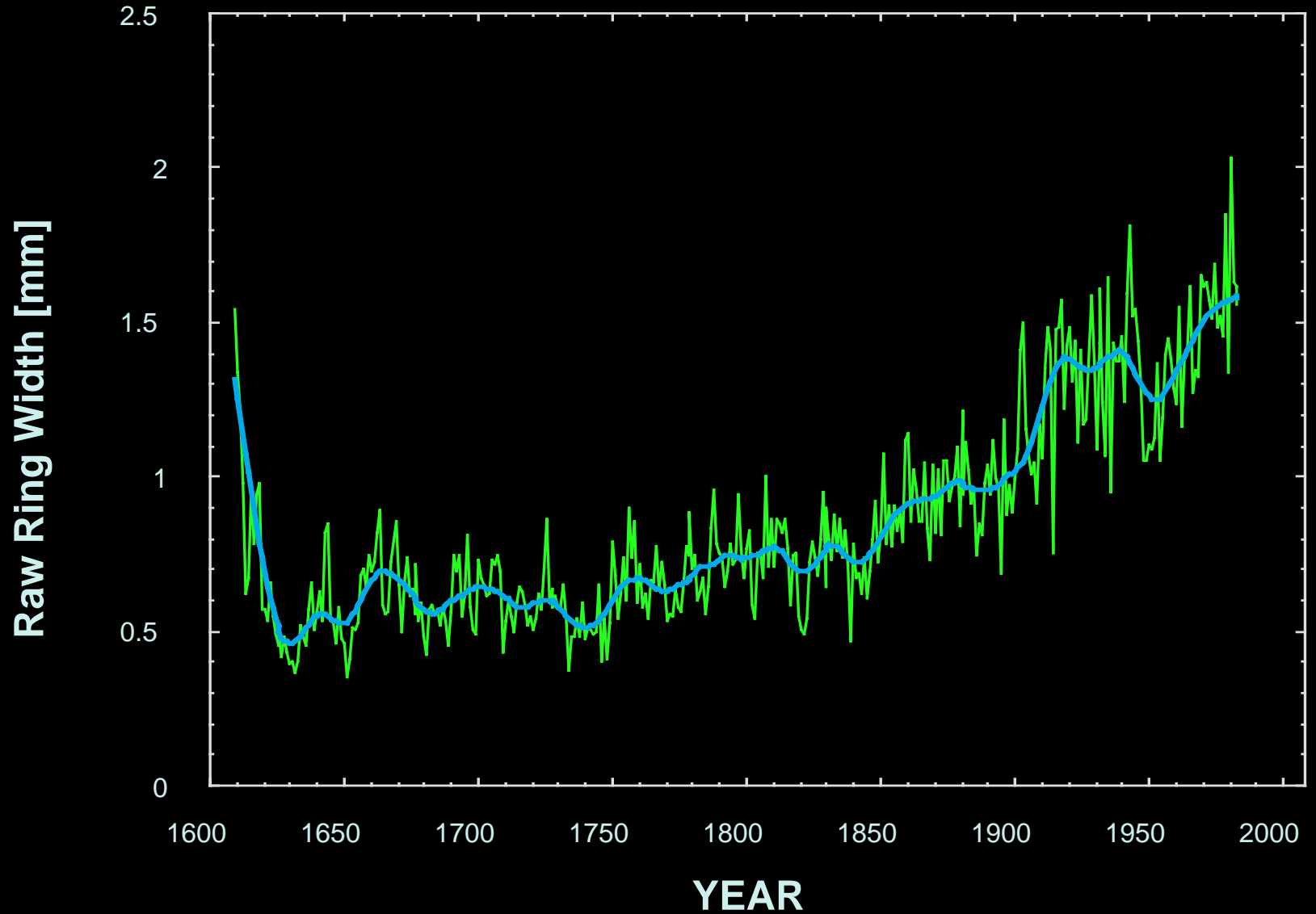
Bob Marshall -1927 - Journal of Forestry

Figure 3
WHITE PINE GROWTH BY AGE



Life Lessons: III

Stebbens Gulch, OH Chestnut Oak



Life Lessons from Old Trees!!

Ronald Reagan - described as having the energy of an aircraft carrier - slow moving, but always in motion.

Men's 2004 French Open Winner - lost 1st 2 sets; playing horrible; keep hitting the ball back - won in 5 sets

Syracuse Lacrosse 2004 Men's National Champs

- demolished early in season by **Johns Hopkins**
- lost to a weak **Rutgers** team mid-season;
- dusted themselves off, dominated **Hopkins** in semis,
- *unpatriotically* fought **Navy** to win **national championship** on **Memorial Day**

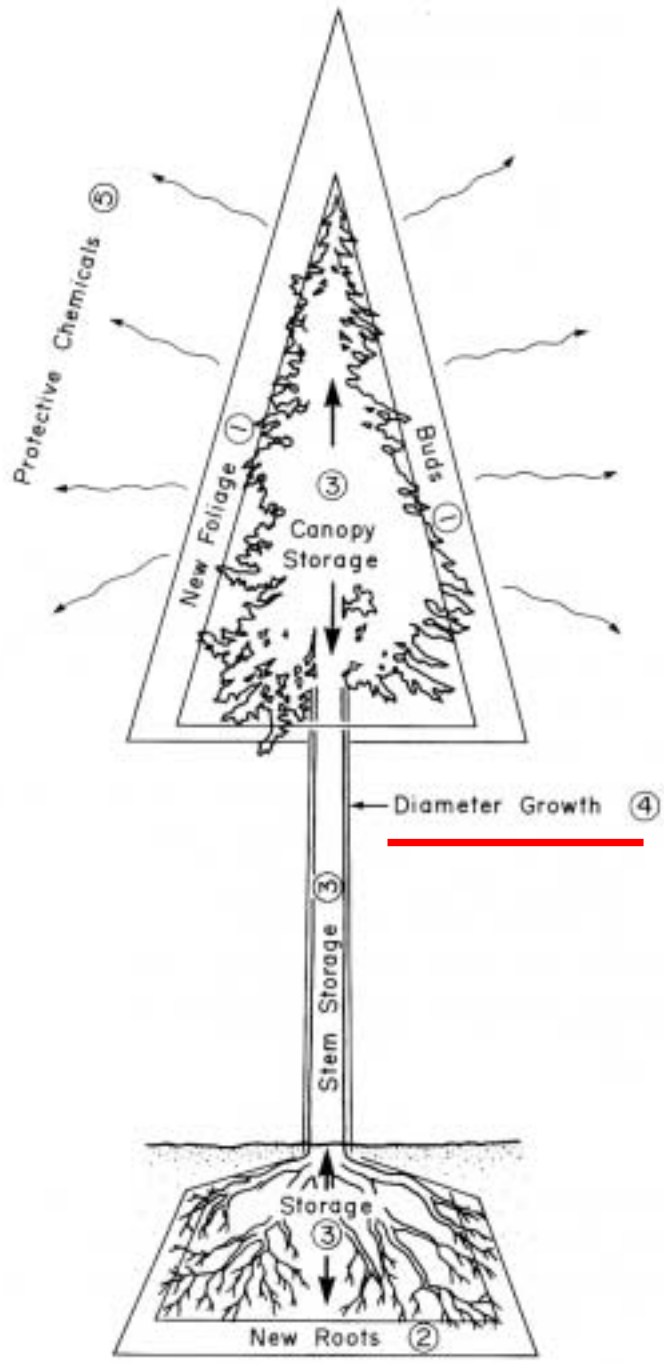


acknowledgements

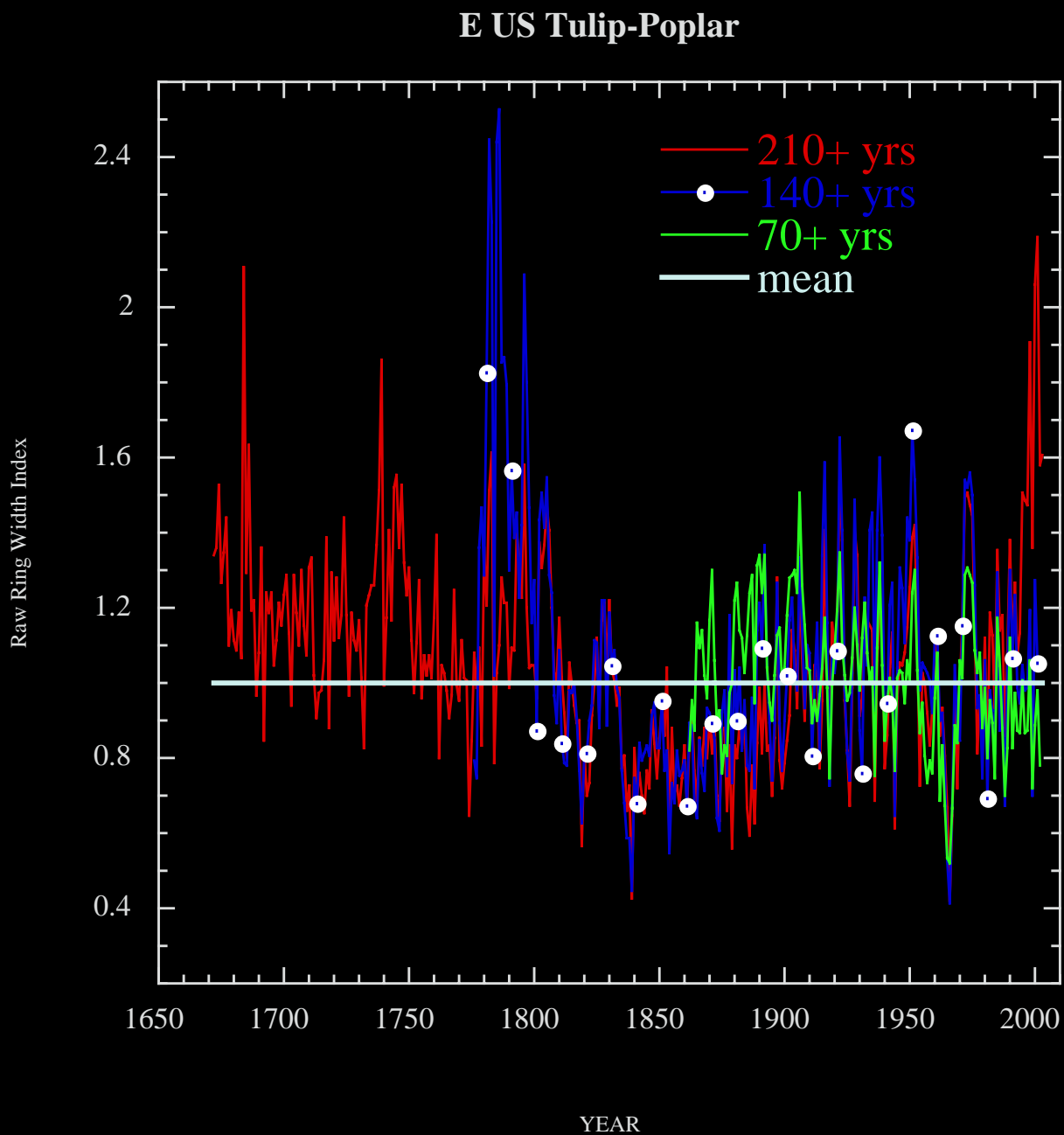
DOE Global Change
Education Program



growth allocation



tulip-poplar



growth allocation

